SIEMENS

ARCADIS

SP

Installation Instructions

System

Replacing the stress release support sleeve

© Siemens AG 2007
The reproduction, transmission or use of this document or its contents is not permitted without express written authority. Offenders will be liable for damages. All rights, including rights created by patent grant or registration of a utility model or design, are reserved.

Print No.: SP00-000.812.08.01.02
Replaces: n.a.

English
Doc. Gen. Date: 01.07

Document revision level

The document corresponds to the version/revision level effective at the time of system delivery. Revisions to hardcopy documentation are not automatically distributed.

Please contact your local Siemens office to order current revision levels.

Disclaimer

The installation and service of equipment described herein is to be performed by qualified personnel who are employed by Siemens or one of its affiliates or who are otherwise authorized by Siemens or one of its affiliates to provide such services.

Assemblers and other persons who are not employed by or otherwise directly affiliated with or authorized by Siemens or one of its affiliates are directed to contact one of the local offices of Siemens or one of its affiliates before attempting installation or service procedures.

Table of Contents 3

1 Requirements and safety information 4

Safety information . . . 4
General safety information . . . 4
General electrical safety information . . . 4
Safety information - risk of infection . . . 4
Information on the protective conductor resistance test . . . 5
Requirements . . . 7
Validity of these instructions . . . 7
Required tools, measurement devices and auxiliary materials . . . 7
Required materials . . . 7

2 Replacement of the stress release support sleeves 8

Monitor cable . . . 8
Monitor cable at the monitor trolley . . . 8
Monitor cable at the X10 plug . . . 11
Power cable, monitor trolley . . . 14
Final work steps . . . 17
Protective ground wire check . . . 17
Function test . . . 17

3 Changes to previous version 18

Safety information

General safety information

⚠WARNING

Danger of injuries, death or material damage.

Non-compliance can lead to death, injury or material damage.

Please note:

- ➪ **The product-specific safety notes in these instructions,**
- ➪ **The general safety information in TD00-000.860.01... and**
- ➪ **The safety information in accordance with ARTD Part 2.**

General electrical safety information

⚠WARNING

Electrical safety!

Non-compliance can lead to severe injury or even death, as well as material damage.

- ➪ **Parts under electrical voltage are accessible when the covers are open. To avoid danger, disconnect the system from the power supply before opening the covers. Disconnect the power plug.**
- ➪ **If an uninterruptible power supply (UPS) is installed in the system, the voltage output of the UPS must also be deenergized or the voltage output plug must be disconnected.**
- ➪ **If work steps must be performed using electrical power, the general safety information according to TD00-000.860.01 must be observed.**

Safety information - risk of infection

⚠WARNING

Risk of infection due to pathogens!

Non-compliance can lead to severe injury and even death.

- ➪ **This product can be contaminated with infected blood or other bodily fluids.**
- ➪ **Avoid all contact with blood or other bodily fluids!**
- ➪ **Strictly observe the safety information in ARTD-002.731.37.. regarding prevention of infectious diseases during customer service calls.**

Information on the protective conductor resistance test

Observe the instructions in the "Safety Rules for Installation and Repair" (ARTD-002.731.17 ...).

The protective conductor resistance must be measured after every intervention in the system.

However, documentation of the measured values is required only during periodic safety checks.

If parts/components that can significantly influence the protective conductor resistance (e.g., replacement of the power cable, replacement of the power-up module, replacement of multi-pole connection cables which also create the protective conductor connection between system parts (e.g., monitor cable or C-arm cable)) are replaced or if protective conductor connections have been repaired, the protective conductor resistance must be measured. The values must be documented and evaluated in the protective conductor resistance protocol.

NOTE

For evaluation purposes, the first measured value and the values documented during maintenance or safety checks must be compared to the measured values. A sudden or unexpected increase in the measured values may indicate a defect in the protective conductor connections - even if the limit value of 0.2 ohms is not exceeded. (Protective conductor or contacts).

The measurement must be performed according to DIN VDE 0751, Part 1 (see ARTD Part 2). The protective conductor resistance for all touchable conductive parts must be measured during the normal operating state of the system.

Make sure that control cables or data cables between the components of the system are not mistaken for protective conductor connections.

During the measurement, the power cable and additional connection cables which also create the protective conductor connection between system parts (e.g. monitor cable between the basic unit and monitor trolley) must be moved section by section to detect cable breaks.

The protective conductor resistance must not exceed 0.2 Ohms.

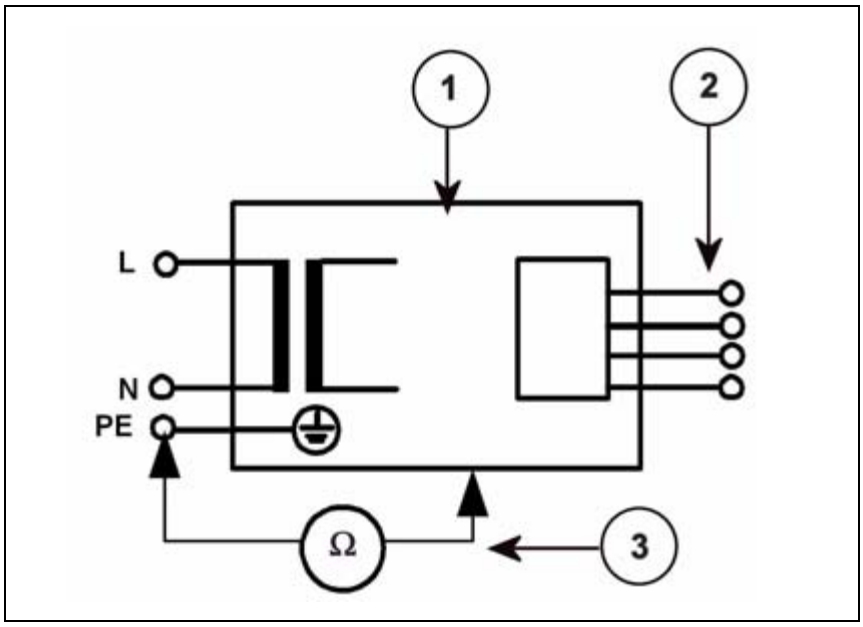

Fig. 1: Measuring circuit for measuring the protective conductor resistance for units that are disconnected from power, in compliance with DIN VDE 0751-1/2001-10, Fig. C2.

Pos. 1 = System

Pos. 2 = Application part type B (if available)

Pos. 3 = Measurement setup (integrated into measuring device)

Requirements

Validity of these instructions

These instructions apply to the replacement of the stress release support sleeves on the monitor cable and power cable from the monitor cart of the ARCADIS Varic, ARCADIS Orbic and ARCADIS Avantic systems.

NOTE	**Since March 2007, the new stress release support sleeves are part of the ARCADIS systems delivered.**

Required tools, measurement devices and auxiliary materials

- Standard tool kit
- 1 set Allen wrenches (metric)
- 1 set Torx wrenches
- Protective conductor meter e.g. UNIMET 1100 Safety Tester, Mat. no. 05138727

Required materials

- Modification kit, stress release support sleeve, Mat. no. 08081585.

8 Replacement of the stress release support sleeves

Monitor cable

Monitor cable at the monitor trolley

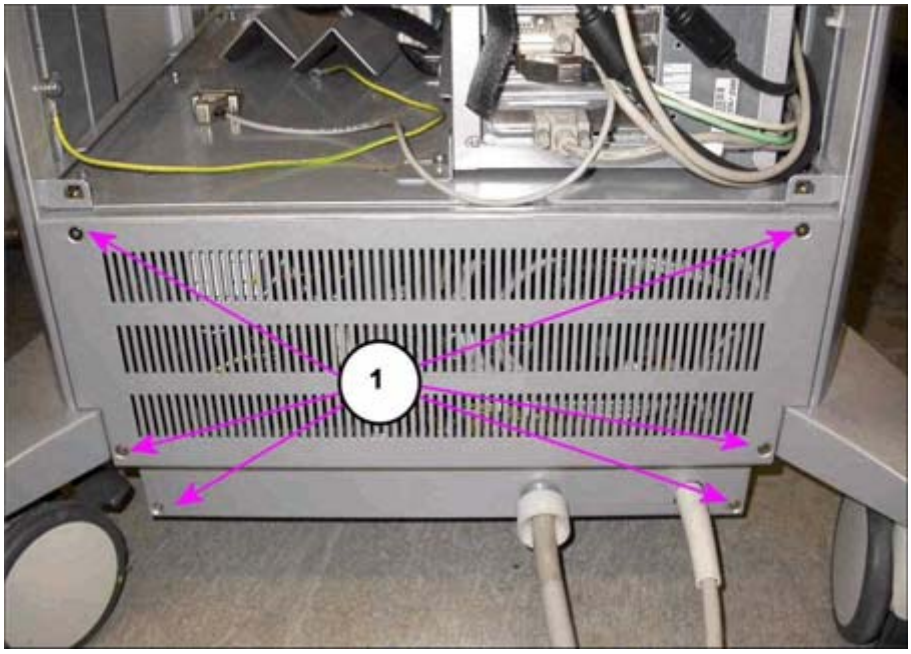

Fig. 2: Monitor trolley, lower rear cover
Pos. 1 Fastening screws

NOTE

Fig. 1 shows the monitor trolley after the replacement of the stress release support sleeves. This small difference is irrelevant to the work steps described.

- The system must be switched off.
- Disconnect the power cable of the system from the wall socket.
- Unscrew all 6 screws fastening the lower rear cover of the monitor trolley.
- Remove the rear cover from the trolley.

Fig. 3: Protective ground wire

- Remove the protective conductor wire from the cover.

  ➪ The old rear cover is no longer needed and is replaced by the new rear cover included in the repair kit.

- Connect the protective conductor wire at the new rear cover.

Fig. 4: Monitor cable, removing the old stress release support sleeve

NOTE

Do not remove the stress release support sleeve from the power cable!

10 Replacement of the stress release support sleeves

Remove the old stress release support sleeve from the monitor cable.

➪ To prevent any damage to the monitor cable, use a small wire cutter, not a knife.

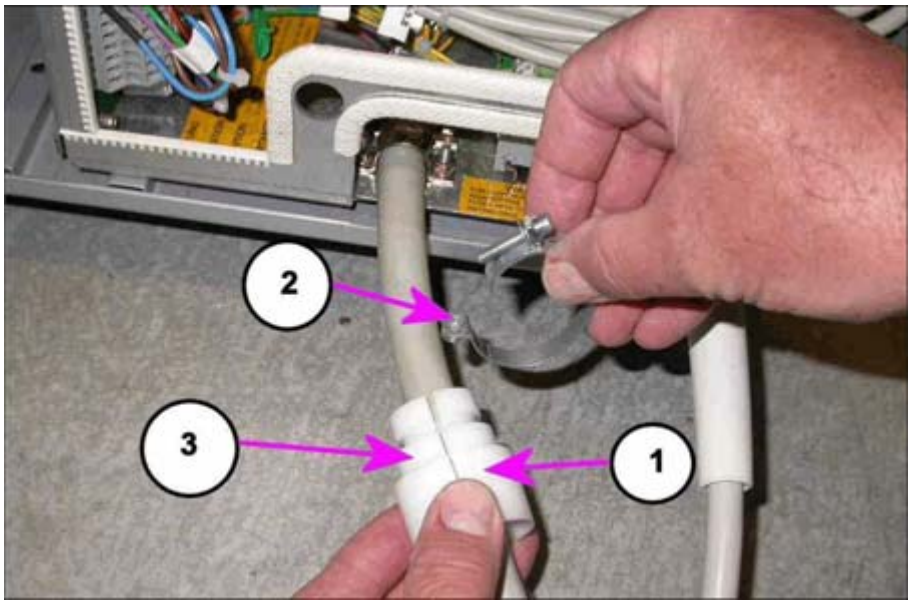

Fig. 5: Monitor cable, mounting the new stress release support sleeve

Pos. 1 New stress release support sleeve

Pos. 2 Cable clamp (medium diameter)

Pos. 3 Stress release support sleeve position for cable clamp

- Use a cable clamp with the largest diameter (included in the repair kit).
- Open the cable clamp completely, as shown in (2/Fig. 5 / p. 10).
- Take the two halves of the stress release support sleeve and lay them around the monitor cable as shown in (1/Fig. 5 / p. 10).

  ➪ The circular groove around the stress release support sleeve faces the monitor trolley.
- Take the opened cable clamp and lay it around the two halves of the stress release support sleeve in the position shown in (3/Fig. 5 / p. 10).
- Close the cable clamp and fasten it.

  ➪ The cable clamp is placed around the stress release support sleeve here: (3/Fig. 5 / p. 10).

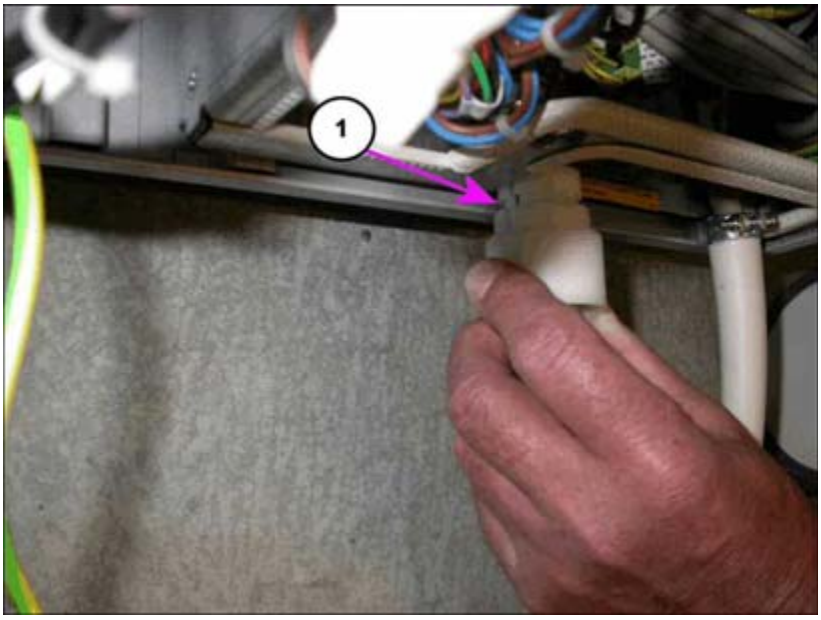

Fig. 6: Monitor cable, position of the new stress release support sleeve
Pos. 1 Position of the circular groove with respect to the plate

- Move the stress release support sleeve to the monitor trolley as shown above.
  ➪ The edge of the plate fits in the circular groove of the sleeve. See (1/Fig. 6 / p. 11)

Monitor cable at the X10 plug

Fig. 7: X10 plug

- Open the X10 plug by removing the 4 screws as shown in (Fig. 7 / p. 11).
- Remove the old stress release support sleeve from the monitor cable.
  ➪ To prevent any damage to the monitor cable, use a small wire cutter, not a knife.

12 Replacement of the stress release support sleeves

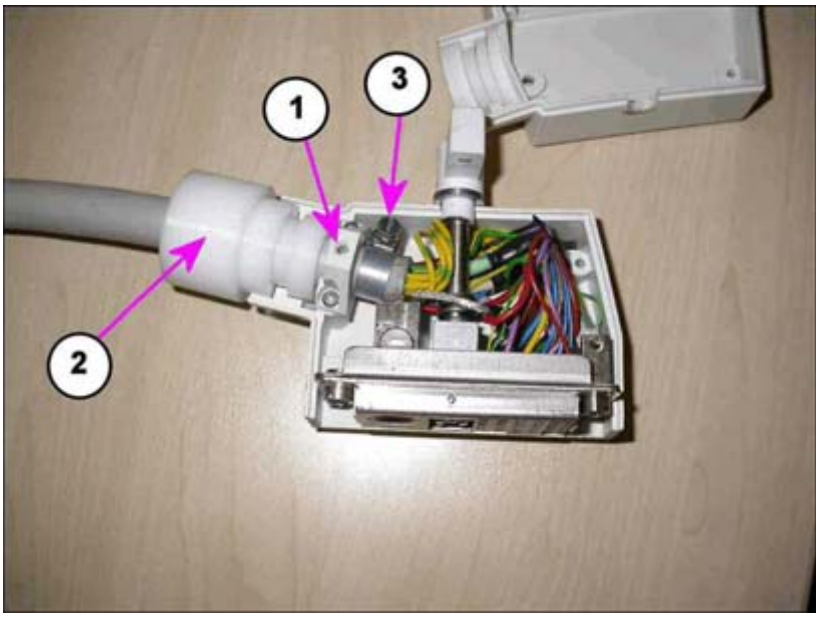

Fig. 8: X10 plug, opened

Pos. 1 Strain relief

Pos. 2 New cable clamp

Pos. 3 New stress release support sleeve

- Remove the strain relief.(1/Fig. 8 / p. 12)
- Remove the old stress release support sleeve from the monitor cable (Fig. 9 / p. 13).
  - ➪ To prevent any damage to the monitor cable, use a small wire cutter, not a knife.

NOTE

Do not remove the stress release support sleeve from the power cable!

- Take the two halves of the stress release support sleeve and lay them around the monitor cable as shown in (2/Fig. 8 / p. 12).
  - ➪ The circular groove around the stress release support sleeve goes in the X10 housing.
- Use a cable clamp with the smallest diameter (included in the repair kit).
- Open the cable clamp completely, lay it around the monitor cable, and fasten it at the position shown in (3/Fig. 8 / p. 12).
- Fasten the strain relief (1/Fig. 8 / p. 12).
  - ➪ The cable lies in the X10 housing as shown in (Fig. 8 / p. 12).
- Close the X10 plug and fasten the 4 screws. See (Fig. 7 / p. 11).

Fig. 9: Monitor cable, removing the old stress release support sleeve

Power cable, monitor trolley

Fig. 10: Power cable, strain relief
Pos. 1 Position of the strain relief

- Loosen the two nuts of the strain relief that attach the power cable at the ON/OFF assembly. (1/Fig. 10 / p. 14).

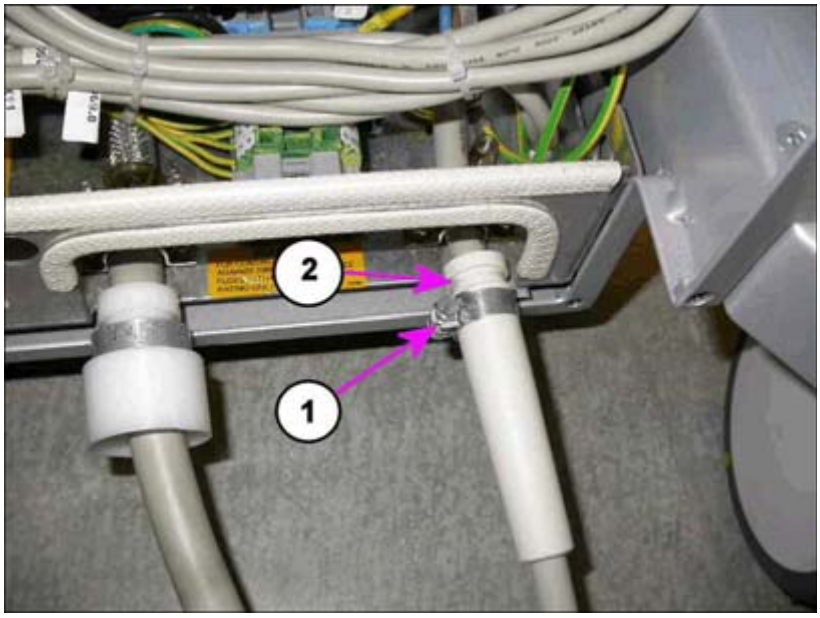

Fig. 11: Power cable, cable clamp
Pos. 1 New cable clamp
Pos. 2 Power cable stress release support sleeve, circular groove

- Use a cable clamp with a medium diameter (included in the repair kit).
- Open the cable clamp completely.
- Lay the cable clamp around the stress release support sleeve of the power cable.

- Move the cable clamp to the end of the stress release support sleeve (2/Fig. 11 / p. 14) and fasten it.

NOTE

With some systems, the stress release support sleeve might break off at the circular groove (2/Fig. 11 / p. 14).

In such cases, cut off the broken circular groove, using a small wire cutter. Move the cable clamp to the end of the stress release support sleeve and fasten it.

Fig. 12: Power cable, strain relief
Pos. 1 Position of the strain relief

- Push the power cable with the newly mounted cable clamp into the monitor trolley until the cable clamp lies inside the monitor trolley (between the outer edge of the monitor trolley and the strain relief at the ON/OFF assembly, see (Fig. 12 / p. 15)).
- Fasten the two nuts of the strain relief at the ON/OFF assembly (1/Fig. 12 / p. 15).

  ➪ The power cable is now secured and can't be pulled out.

16 Replacement of the stress release support sleeves

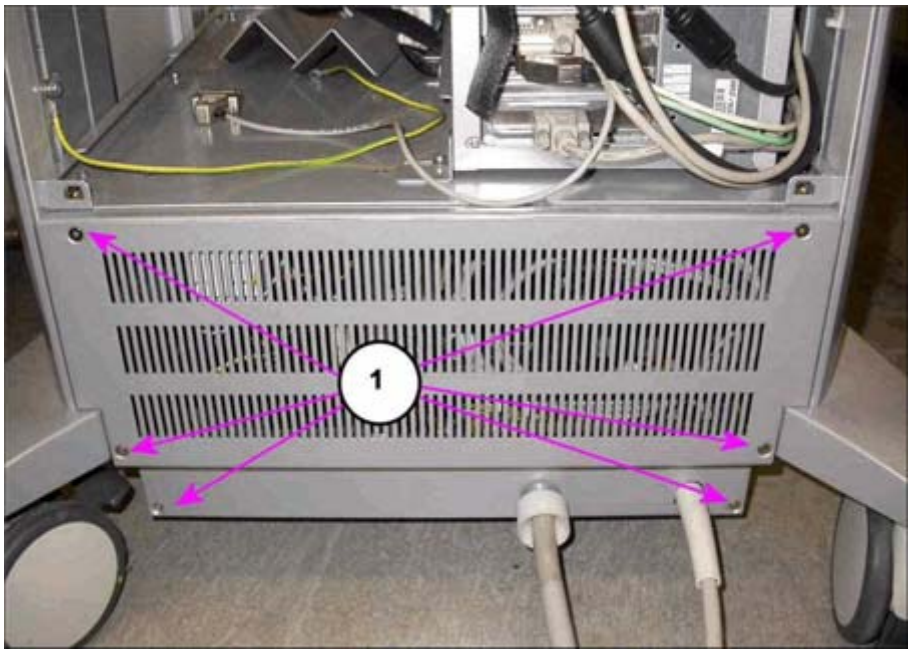

Fig. 13: Monitor trolley, lower rear cover

Pos. 1 Fastening screws

NOTE

The protective conductor wire must be connected to the new rear cover, as previously described in the section “Monitor cable at the monitor trolley”. See (Fig. 3 / p. 9)

- Close the rear cover. For easier installation, press down the monitor cable a little bit.
  - ➪ The cable outlet of the rear cover slides in the circular groove of the new monitor cable stress release support sleeve.
- Fasten all 6 screws.

Final work steps

Protective ground wire check

- Close all covers. If any other protective ground wires were disconnected, reconnect them.
- Perform the protective conductor test according to ARTD-002.731.17...
  - ➪ The protective conductor resistance may not exceed 0.2 Ohms.

Function test

- Connect the monitor cable to the basic unit.
- Connect the power cable to the mains socket.
- Switch on the system and wait until it has booted.
  - ➪ The system must boot without any error messages being displayed.
- Click the "emergency patient" button in the patient registry screen.
  - ➪ The screen disappears and the message “X-Ray ready” should be displayed in the status line at the left monitor image.
- At the basic unit, press the fluoro, pulsed fluoro, and DR operating mode keys consecutively and check each selected mode display in the application task card.
  - ➪ The selected mode is displayed as a symbol in the application screen.
- Switch off the system and wait for it to shut down.

18 Changes to previous version

n.a.